

REMARKS

Applicant has reviewed and considered the Office Action mailed on October 24, 2003, and the references cited therewith.

Claims 1-5, 7-27, 29 and 30 are now pending in this application.

§103 Rejection of the Claims

Claims 1-5, 7-20, 22, 24-27 and 29-30 were rejected under 35 USC § 103(a) as being unpatentable over Lambrecht (US 6,259,792) in view of Denenberg (US 5,375,174) and Eatwell (US 5,828,768). This rejection is respectfully traversed, as a prima facie case of obviousness has not been established.

Each of the independent claims 1, 8, 13, 16 and 24 recite a standard headphone compatible audio output connection. As the Office Action points out, Lambrect does not describe such a connection. The Office Action indicates that Denenberg does teach such a connection. This is respectfully traversed. The connection in Denenberg is anything but standard. In Denenberg, the microphones 34 and 35 are located in the headset 30, and a remote controller 38 is used to process the noise signals and provide the cancellation signal using a **synchronous** controller. No such connection was found in Eatwell et al. Since none of the references teach a standard headphone compatible audio output connection, the rejection should be withdrawn.

The Office Action appears to be taking elements from three different patents and arranging them in a manner designed to show the elements of the claims. In essence, Lambrecht is used to provide a personal computer, a microphone and noise cancellation signal. Denenberg is used to provide a digital signal processor and standard headphone compatible audio output connection to reduce headphone noise. Finally, Eatwell is used to provide the built-in microphone. Each of these references operate in fundamentally different manners. Lambrecht addresses constant background noise and minimizes the use of personal computer resources. Denenberg addresses real time noise such as a siren, but is not even related to personal computers. One of skill in the art would be very discouraged from trying to combine them. Eatwell is clearly only directed toward noise cancellation for loud speakers built into a multimedia computer. The present invention provides noise cancellation for standard

headphones coupled to a personal computer.

There is no coherent suggestion in the art to combine these references other than by using the present claims as a roadmap. In fact, the references are each addressed to different problems, and combining them in the manner indicated in the Office Action would destroy the stated purposes of the references. If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); MPEP § 2143.01.

The Office Action first indicates that Lambrecht fails to teach a digital signal processor for mixing the noise cancellation signal with an audio signal for provision to a standard headphone compatible audio output connection as claimed. It then states that Denenberg teaches a DSP for mixing a noise cancellation signal with an audio signal for provision to a standard headphone audio output connection to reduce headphone noise. In Denenberg, the microphones 34 and 35 are located in the headset 30, and a remote controller 38 is used to process the noise signals and provide the cancellation signal using a **synchronous** controller. Lambrecht utilizes a sample signal, so that “the noise cancellation function requires relatively little processing power and is accomplished without the need for special purpose hardware.” Abstract. Thus, Lambrecht is directed to a different problem, that of providing noise cancellation while reducing “the processing requirements of the host processor.” Col. 2, lines 26 – 27. Denenberg does not even describe a personal computer. In fact, it is highly unlikely that a personal computer would be in the environment of an emergency vehicle, which is the environment described by Denenberg. Thus, the combination would destroy the stated purpose of both references references.

A factor cutting against a finding of motivation to combine or modify the prior art is when the prior art teaches away from the claimed combination. A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path the applicant took. *In re Gurley*, 27 F.3d 551, 31 USPQ 2d 1130, 1131 (Fed. Cir. 1994); *United States v. Adams*, 383 U.S. 39, 52, 148 USPQ 479, 484 (1966); *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244 (C.C.P.A. 1969); *In re Caldwell*, 319 F.2d 254, 256, 138 USPQ 243, 245 (C.C.P.A. 1963). Lambrecht teaches away in Col. 6, lines 49-59:

“The above described systems are effective for canceling relatively constant statistically predictable noise. For example, airplane noise is relatively constant and has a statistically predictable frequency spectrum. Because the noise is relatively constant and statistically predictable, a cancellation signal can be calculated **without continuously sampling the noise environment**. If the characteristics of the noise change at a relatively slow rate and remain statistically predictable, the above-described systems can effectively cancel noise by periodically updating the cancellation signal”

Lambrecht effectively indicates that it would not work on transient noise, such as a siren, which Denenberg is designed to address. Lambrecht indicates that continuous sampling is not required, whereas Denenberg uses a synchronous controller to compensate for transient noise such as the siren. This is a consequence of Lambrecht using a personal computer, and Denenberg not referencing a personal computer. Thus, **the two references are simply not combinable without fundamentally changing the operation of one or the other**. As such, there is no suggestion to combine the references, and the rejection should be withdrawn.

The Office Action must provide specific, objective evidence of record for a finding of a suggestion or motivation to combine reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding. *In re Sang Su Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). The Office Action stated “it would obvious to one of ordinary skill in the art at the time invention was made to combine the teaching of Lambrecht and Denenberg to achieve an audio entertainment system or a communications system can be combined with a noise control system and the system of this teaching to provide a better sound fidelity” which is a mere conclusory statement of subjective belief. There is no identification of a suggestion in the art for such a combination. Applicant respectfully submits that the Office Action has not provided objective evidence for a suggestion or motivation to combine the references.

Dependent claims 2-5, 7, 9-12, 14-15, 17-20, 22, 25-27 and 29-30 each depend from an independent claim believed to distinguish the references for the reasons stated above.

Claims 24-27 specifically recite: “a profile for compensating for keyboard key clicks detected by the microphone”. The Examiner states that Lambrecht has “a profile for

compensating for keyboard key clicks detected inherently by the microphone". There is no teaching in Lambrecht to such a profile, and such teaching cannot be inherent. The Office Action has not established a *prima facie* case of inherency because, as recited in MPEP § 2112, "In relying upon the theory of inherency, the examiner must provide basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art," citing Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

The Office Action only argued that the profile was inherent because the microphone detects key clicks. Thus, the Office Action does not even assert that the allegedly inherent characteristic is necessary, let alone provide a basis in fact and/or technical reasoning. Applicant respectfully submits that the use of a profile for key clicks does not necessarily flow from the teaching of Lambrecht because the noise caused by key clicks could be cancelled real time, without the use of a profile. Thus, using a profile is not something that necessarily flows from the teachings of Lambrecht.

In fact, Lambrecht teaches away in Col. 6, lines 49-59:

"The above described systems are effective for canceling relatively constant statistically predictable noise. For example, airplane noise is relatively constant and has a statistically predictable frequency spectrum. Because the noise is relatively constant and statistically predictable, a cancellation signal can be calculated without continuously sampling the noise environment. If the characteristics of the noise change at a relatively slow rate and remain statistically predictable, the above-described systems can effectively cancel noise by periodically updating the cancellation signal"

Lambrecht effectively indicates that it would not work on transient noise, such as keyboard sounds. Instead, it works on constant noise, such as airplane noise. Thus, given the teaching away, and the lack of teaching of the profile element, the rejection should be withdrawn.

Claims 21 and 23 were rejected under 35 USC § 103(a) as being unpatentable over Lambrecht (US 6,259,792), Denenberg (US 5,375,174) and Eatwell (US 5,828,768) as applied to

claims 1, 8, and further in view of Markow (US 6,304,434). Claims 21 and 23 depend from claim 1 and are believed to distinguish the references for at least the same reason since Markow is not cited as providing the motivation to combine Lambrecht, Denenberg and Eatwell.

Claims 24-27 were rejected under 35 USC § 103(a) as being unpatentable over Eatwell (US 5,828,768) in view of Denenberg (US 5,375,174). This rejection is respectfully traversed.

Claims 24-27 specifically recite: “a profile for compensating for keyboard key clicks detected by the microphone”. The Examiner states that Eatwell “inherently” has “a profile for compensating for keyboard key clicks (such as, hard and floppy disk are based on background noise) detected by the microphone...”. There is no direct teaching in Eatwell to such a profile, and such teaching cannot be inherent. The Office Action has not established a *prima facie* case of inherency because, as recited in MPEP § 2112, “In relying upon the theory of inherency, the examiner must provide basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art,” citing Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

The Office Action only argued that the profile was inherent because the microphone detects key clicks. Thus, the Office Action does not even assert that the allegedly inherent characteristic is necessary, let alone provide a basis in fact and/or technical reasoning. Applicant respectfully submits that the use of a profile for key clicks does not necessarily flow from the teaching of Eatwell, because the noise caused by key clicks could be cancelled real time, without the use of a profile. Thus, using a profile is not something that necessarily flows from the teachings of Eatwell.

Claims 24-27 also recite “an audio output connection for a standard headset.” As indicated above, no such connection is shown in Denenberg, as the headset in Denenberg is anything but standard. It includes a noise cancellation microphone 11. Further, it uses a transceiver to communicate with the controller, not a standard audio output connection.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney **Bradley A. Forrest** at **(612) 373-6972** to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 50-0439.

Respectfully submitted,

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Date January 22, 2004

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 22 day of January, 2004.

Candis B. Buending

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